

III. AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions, and listings, of claims in the application:

1. (Withdrawn) A starting-process controller for starting a piezomotor (4),
 - having a voltage-controlled oscillator (1)(VCO), a power output stage (2), and a resonance converter (3), wherein
 - the oscillator (1)(VCO) generates the control signals required for the power output stage (2),
 - the resonance converter (3) converts the stepped output voltage from the power output stage (2) into a sinusoidal voltage at its output,
 - the piezomotor (4) is driven by the sinusoidal voltage from the resonance converter (3),
 - the motor current that flows when the piezomotor (4) is driven is measured and compared with the phase of the drive voltage in a phase comparator (6),
 - the output signal from the phase comparator (6) is a measure for the phase difference at the time between current and voltage,
 - a phase-locked loop filter (8) smoothes the phase-difference signal,
 - the smoothed signal controls the oscillator (1)(VCO), and
 - a start-assisting circuit element (10) fixes the output voltage from the phase-locked loop filter (8) at start-up and thus applies a constant voltage to the input of the voltage-controlled oscillator (1)(VCO).

2 – 4 (Cancelled)

5. (Withdrawn) A starting-process controller as claimed in claim 1, characterized in that the length in time of a signal for activating the switching element (10) is set to a fixed duration from the beginning of start-up.

6. (Withdrawn) A starting-process controller as claimed in claim 1, characterized in that the activating signal causes the motor (4) to break away.

7. (Withdrawn) A starting-process controller as claimed in claim 1, characterized in that the activating signal is triggered by the "power-on".

8. (Withdrawn) A starting-process controller as claimed in claim 1, characterized in that the activating signal is generated by a digital counter or a state machine.

9. (Withdrawn) A starting-process controller as claimed in claim 1, characterized in that the activating signal is generated by a digital processor.

10. (Currently Amended) A starting-process controller for starting a piezomotor (4), comprising:

- ~~having~~ a voltage-controlled oscillator ~~(1)~~(VCO), a power output stage ~~(2)~~, and a resonance converter ~~(3)~~, wherein
- the VCO ~~oscillator~~ ~~(1)~~(VCO) generates the control signals required for the power output stage ~~(2)~~,
- the resonance converter ~~(3)~~ converts the stepped output voltage from the power output stage ~~(2)~~ into a sinusoidal voltage at its output,
- the piezomotor (4) is driven by the sinusoidal voltage from the resonance converter ~~(3)~~,
- the motor current that flows when the piezomotor (4) is driven is measured and compared with the phase of the drive voltage in a phase comparator ~~(6)~~,
- the output signal from the phase comparator ~~(6)~~ is a measure for the phase difference at the time between current and voltage,
- a phase-locked loop filter ~~(8)~~ configured to smoothes the phase-difference signal,
- the smoothed signal controls the VCO ~~oscillator~~ ~~(1)~~(VCO), and
- an adjustable time-delay element ~~(15)~~ is provided, by which the phase angle between the voltage applied to the motor and the motor current is changed in start-up operation from an initially large starting angle towards a smaller angle at the an operating point, ~~so that start-up will be completed safely and reliably irrespective of the loading condition.~~

11. (Currently Amended) ~~The A~~ starting-process controller ~~as claimed in~~ of claim 10, characterized in that wherein the reduction in phase-angle during the start-up process is in the form of a ramp.
12. (Currently Amended) ~~The A~~ starting-process controller ~~as claimed in~~ of claim 10, characterized in that wherein the reduction in phase-angle during the start-up process is effected by means of a digital counter ~~(15a)~~.
13. (Currently Amended) ~~The A~~ starting-process controller ~~as claimed in~~ of claim 10, characterized in that wherein the starting value of the counter ~~(15a)~~ fixes the phase-angle.
14. (Currently Amended) ~~The A~~ starting-process controller ~~as claimed in~~ of claim 12, characterized in that wherein the phase-angle is fixed by the final count reached by the digital counter ~~(15a)~~.
15. (Currently Amended) ~~The A~~ starting-process controller ~~as claimed in~~ of claim 10, characterized in that wherein the start-up process is determined by means of a counter ~~(11a)~~.
16. (Currently Amended) ~~The A~~ starting-process controller ~~as claimed in~~ of claim 15, characterized in that wherein the counter ~~(11a)~~ counts single or multiple oscillations of the oscillator frequency.
17. (Currently Amended) ~~The A~~ starting-process controller ~~as claimed in~~ of claim 15, characterized in that the counter (11a) counts oscillations of a reference frequency forming a clock signal.
18. (Currently Amended) ~~The A~~ starting-process controller ~~as claimed in~~ of claim 15, characterized in that wherein the counts made by the counter ~~(11a)~~ are used directly for setting the phase delay.

19. (Currently Amended) ~~The A~~ starting-process controller ~~as claimed in~~ of claim 10, ~~characterized in that~~ wherein the counts are converted into the value for setting the phase delay.

20. (Currently Amended) ~~The A~~ starting-process controller ~~as claimed in~~ of claim 10, ~~characterized in that~~ wherein the counts are converted into values for setting the phase delay by means of a table (16) in a memory device (~~RAM or ROM~~).

21. (Currently Amended) ~~The A~~ starting-process controller ~~as claimed in~~ of claim 10, ~~characterized in that~~ wherein the starting process is monitored by a programmable control device such as a ~~microprocessor or a DSP~~.

22. (Currently Amended) ~~The A~~ starting-process controller ~~as claimed in~~ of claim 21, ~~characterized in that~~ wherein the microprocessor monitors the phase delay digitally.